Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Cancel claims 1-4.

5. (currently amended) ~~The circuit recited in claim 4~~ A circuit for determining temperature of an active semiconductor device, comprising:

(A) a semiconductor substrate having thereon the active device;

(B) a bridge circuit comprising:

(i) a first thermal sensitive device disposed in thermal contact with an electrode of the active device, such first thermal sensitive device having a pair of terminals, a first one of the pair of terminals being connected to a first node and a second one of the pair of terminals being connected to a second node;

(ii) a second thermal sensitive device disposed in thermal contact with the electrode of the active device, such second thermal sensitive device having a pair of terminals, a first one of the pair of terminals being connected to a third node and a second one of the pair of terminals being connected to a fourth node;

(iii) a third thermal sensitive device disposed in thermal contact with the substrate, such third thermal sensitive device having a pair of terminals, a first one of the pair of terminals being connected to the second node and a second one of the pair of terminals being connected to the fourth node;

(iv) a fourth thermal sensitive device disposed in thermal contact with the substrate, such fourth thermal sensitive device having a pair of terminals, a first one of the pair of terminals being connected to the first node and a second one of the pair of terminals being connected to the third node;

(v) a voltage potential connected between the first node and the fourth node;

(vi) an output provided by the second node and the third node;

including a tuning circuit coupled to an output electrode of the transistor, such tuning circuit having a tunable element controlled by a control signal fed to such tunable element.

6. The circuit recited in claim 5 including a processor responsive to a voltage produced at the output of the bridge and a signal representative of power fed to the transistor.

Cancel claims 7-10.

11. (currently amended) ~~The circuit recited in claim 10~~ A circuit for determining temperature of an active semiconductor device, comprising:

(A) a semiconductor substrate having thereon the active device;

(B) a Wheatstone bridge circuit having in each of four branches thereof a thermal sensitive device, one pair of such thermal sensitive devices being in thermal contact with an electrode of the active device;

wherein the thermal sensitive devices are resistors;

wherein the active device is a transistor; and

-including a tuning circuit coupled to an output of the transistor, such tuning circuit having a tunable element controlled by a control signal fed to such tunable element.

12. (original) The circuit recited in claim 11 including a processor responsive to a voltage produced at an output of the Wheatstone bridge circuit and a signal representative of power fed to the transistor.

13. (original) The circuit recited in claim 12 wherein the output provided by the Wheatstone bridge provides a measure of a temperature difference between the temperature of the transistor and ambient temperature.

14. (currently amended) The circuit recited in claim 13 wherein the processor produces the control signal to maximize power fed to the transistor and minimize power dissipated by such transistor.

Cancel claim 15 - 17.

18. (currently amended) ~~The circuit recited in claim 17~~A circuit for determining temperature of an active semiconductor device, comprising:

(A) a semiconductor substrate having thereon the active device;

(B) a Wheatstone bridge circuit having in each of four branches thereof a thermal sensitive device, one pair of such thermal sensitive devices being in thermal contact with an electrode of the active device;

wherein another pair of such thermal sensitive devices is in thermal contact with the substrate;

wherein the thermal sensitive devices are resistors;

wherein the active device is a transistor; and

including a tuning circuit coupled to an output of the transistor, such tuning circuit having a tunable element controlled by a control signal fed to such tunable element.

19. (original) The circuit recited in claim 18 including a processor responsive to a voltage produced at an output of the Wheatstone bridge circuit and a signal representative of power fed to the transistor.

20. (oroginal) The circuit recited in claim 19 wherein the output provided by the Wheatstone bridge provides a measure of a temperature difference between the temperature of the transistor and ambient temperature.

21. (original) The circuit recited in claim 20 wherein the processor produces the control signal to maximize power fed to the transistor and minimize power dissipated by such transistor.